

# RELATIONS AND FUNCTIONS

## A RELATION

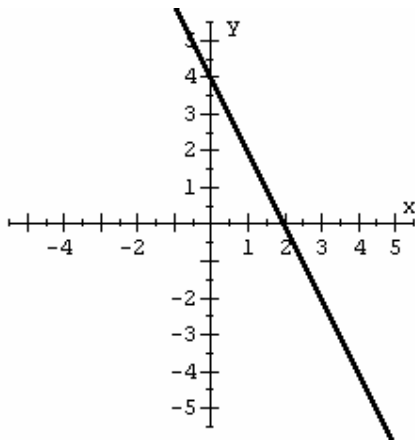
- is a correspondence between two variables.
- is a set of points.

## A FUNCTION

- is a relation such that for each **x-value** in the **Domain**, there is exactly 1 corresponding **y-value** in the **Range**.

### Vertical Line Test for a Function

A vertical line can intersect the graph of a function in at most one point, or using an alternate form,  
If any vertical line intersects the graph at more than one point, then the graph is NOT the graph of a function.

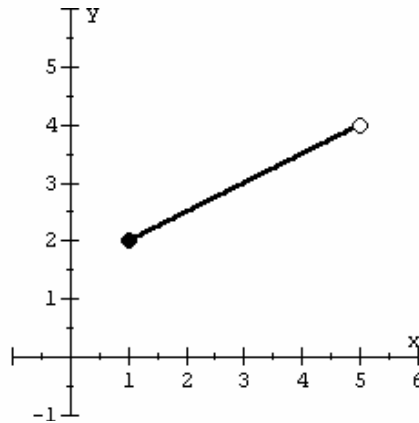


$$y = -2x + 4$$

Function?

Domain:

Range:

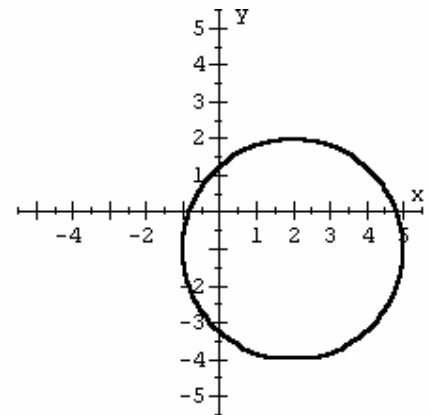


Segment

Function?

Domain:

Range:

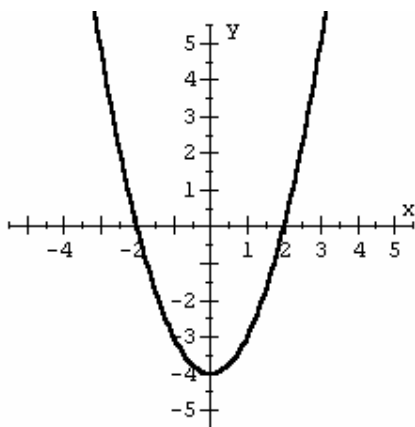


$$(x - 2)^2 + (y + 1)^2 = 9$$

Function?

Domain:

Range:

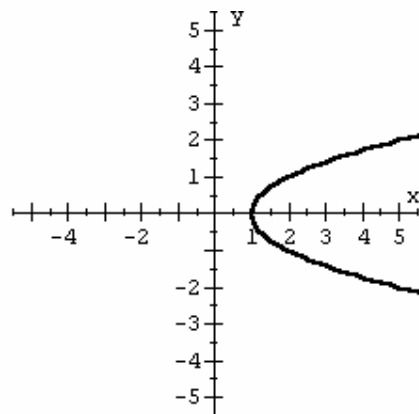


$$y = x^2 - 4$$

Function?

Domain:

Range:

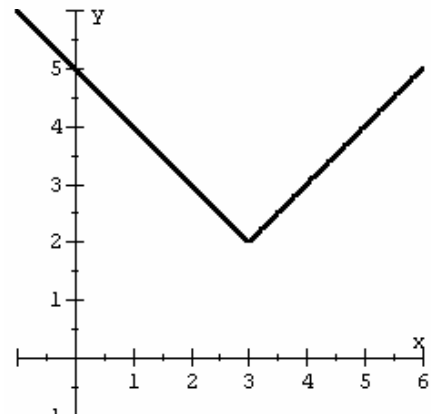


$$x = y^2 + 1$$

Function?

Domain:

Range:



$$y = |x - 3| + 2$$

Function?

Domain:

Range: